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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,845	09/21/2006	Christian Muller	NITROF P67AUS	4049
20210 7590 06/24/2010 DAVIS & BUJOLD, P.L.L.C. 112 PLEASANT STREET CONCORD, NH 03301				
EXAMINER NGUYEN, HUNG D				
ART UNIT		PAPER NUMBER		
3742				
MAIL DATE		DELIVERY MODE		
06/24/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/593,845

**Applicant(s)**

MULLER ET AL.

**Examiner**

HUNG NGUYEN

**Art Unit**

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 29-56 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29-56 is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 September 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-06)  
Paper No(s)/Mail Date 9/21/2006
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **QUAYLE ACTION**

1. This application is in condition for allowance except for the following formal matters:

#### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: the references "53b, 53c and 53d". Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Specification***

3. The abstract of the disclosure is objected to because it should avoid using phrases which can be implied, such as, " This disclosure concerns", "The disclosure defined by this invention", "This disclosure describes", "is disclosed", "are disclosed", "**the invention relates to**" etc. Correction is required. See MPEP § 608.01(b).

4. The specification is objected to because of the following informalities: Page 11, Par. 66, Line 1 of the Specification recites "The external **hold** and cold circuits" which appears to be a misspelling of the word "hot".

Appropriate correction is required.

***Claim Objections***

5. Claim 29 is objected to because of the following informalities: The phrase "can be subjected" recites in line 4 should be changed to "is subjected" for positive recitation. The phrase "will be received" recites in line 14 should be changed to "is received" for positive recitation.

The phrase "said thermal element (Ti)" recites in line 3, 4, 6, 7, 11, 13, 14 and 16 should be changed to "said at least one thermal element (Ti)" for consistence throughout the claim.

The phrase "said magnetic element (Gi)" recites in line 11, 12 and 16 should be changed to "said at least one magnetic element (Gi)" for consistence throughout the claim. Appropriate correction is required.

6. Claim 30 is objected to because of the following informalities: The phrase "resulting in an increase in the magnetic field crossing **it**" recites in lines 6-7 is unclear and should be changed to "resulting in an increase in the magnetic field crossing **said thermal element (Ti)**". Appropriate correction is required.

7. Claim 31 is objected to because of the following informalities: The phrase "thereby weakening the magnetic field that crosses **it**" recites in line 7 is unclear and

should be changed to "thereby weakening the magnetic field that crosses **said thermal element (Ti)**". Appropriate correction is required.

8. Claim 55 is objected to because of the following informalities: there is insufficient antecedent basis for "said variable magnetic field" recited in line 8 in the claim. The phrase "will be received" recites in line 13 should be changed to "is received" for positive recitation. Appropriate correction is required.

***Allowable Subject Matter***

9. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not show or suggest magnetic modulation means (Mj, mj) for varying the magnetic field received by said thermal element (Ti) and a means for recovering at least a portion of thermies generated by said thermal element (Ti) subject to the variable magnetic field, said magnetic modulation means comprises at least one magnetic modulation element (Mj, mj) that is magnetically conductive couple with a displacement means for alternately displacing the magnetic modulation element relative to said magnetic element (Gi) and to said thermal element between an active position as recited in claim 29-54; using a magnetic modulation means (Mj, mj) to modulate said magnetic field received by said thermal element (Ti); and recovering at least a portion of the thermies generated by said thermal element (Ti) subjected to said variable magnetic field, in order to vary said magnetic field received by said thermal element (Ti), at least one magnetically-conductive magnetic modulation element (Mj, mj) is used, which is displaced between at least one active position wherein the magnetically-conductive magnetic modulation element (Mj, mj) is close to said magnetic

element (Gi) and said thermal element (Ti) and channels at least said portion of the magnetic field that will be received by said thermal element (Ti), and an inactive position wherein the magnetically-conductive magnetic modulation element (Mj, mj) is spaced from at least one of said magnetic element (Gi) and said thermal element (Ti) so that the magnetically-conductive magnetic modulation element (Mj, mj) does not channel this portion of the magnetic field as recited in claim 55-56.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 25 USPQ 74, 453 O.G. 213, (Comm'r Pat. 1935).

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Muller et al. (US pat 7,596,955) discloses a device for generating a thermal with magneto-caloric material. Zimm et al. (US Pat. 6,526,759) discloses rotating bed magnetic refrigeration apparatus. Zimm et al. (US Pat. 6,668,560) discloses rotating magnet magnetic refrigeration.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG NGUYEN whose telephone number is (571)270-7828. The examiner can normally be reached on Monday-Friday, 9M-6PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571)272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HUNG NGUYEN/  
Examiner, Art Unit 3742  
6/17/2010

/Quang T Van/  
Primary Examiner, Art Unit 3742